**Management After Occupational Exposure of Potentially Infected Material**

1. The Infectious Disease (ID) Medical Officer (MO) on duty will evaluate the type and severity of exposure and counsels the Health Care Worker (HCW) on the risk of transmission to HIV, HBV, and HCV.
	1. After Office Hour: The MO of Emergency Department (ED) will assess the severity of injury and provide immediate post exposure prophylaxis (PEP) if needed to HCW. Further counselling and risk assessment will be made the next working day by Infectious Disease Physician in ID Clinic.
2. Risk of HIV, HBV and HCV transmission after occupational **PERCUTANEOUS** exposure:
	1. HIV: 0.3% (0.2-0.5%)
	2. HBV : depend on HBeAg positive source: 30%, HBeAg negative : 1-6%
	3. HCV: 1.8% (0-7%)
3. ***ID MO will contact the source patient’s physician, MO, sister of the ward, staff nurse of the ward to determine whether the source’s HIV, HBV and HCV status are known.*** .

The law requires obtaining informed consent before testing a person for HIV. In addition, the person being tested must receive pre and post-test counselling. If the patient lacks capacity to consent, counselling must be provided to the guardian, or other person lawfully authorized to make health care decisions for the patient.

The clinician/ MO in charge of the source patient may need to obtain informed consent before taking the source blood for screening of HIV, HBV and HCV.

1. ***Blood Sampling:***

5 ml of blood to be taken from each (source patient and HCW) in plain tube (red top) to be sent together to the lab with PER-PAT 301 forms and Sharps Injury Form HPP (HPP/PAT/MM/QP/013-APPENDIX 1). This form need to be filled up completely.

**Please inform the lab at EXT 5987 (office hour) and at EXT 5153/5152 (after office hour)**  to expedite the testing. Please write the **contact number of the MO or physician who will attend to the HCW on the request form** to facilitate for the lab staff to contact for the results when is ready.

* 1. ***During office hour (8am – 3 pm) ELISA method will be used to test the blood (Turn around time /TT : 4 hours from the time of receiving samples)***
	2. ***After office hour (3pm – 8 am the next day) Rapid test on HIV and HBsAg will be tested on both samples (proceed with ELISA test the next working day)(TT : 1 H from the time of receiving samples)***
	3. ***For SOURCE patient: anti HIV, HBsAg, anti HCV***
	4. ***For HCW: anti HIV, Hep Bs Ag, Hep Bs Ab, Anti HCV***
		1. ***If SOURCE patient is known Hep C : need to take HCV RNA from source and the HCW in pair to be sent to Hospital Sungai Buloh for testing as well.(use 2 bottles of EDTA tube/purple/FBC tube each)***
1. Post exposure prophylaxis (PEP) to HIV and HBV will be recommended in accordance with CDC guidelines (see below).
2. The HCW is then referred to ID Unit for follow-up counselling later.
	1. **Please call EXT 5711 to arrange appointment.**
3. If the HCW is treated in ED, one or two day supply of post exposure medication will be given to the HCW only, and therefore the HCW must be referred and follow up in ID Clinic in the next working day in order to obtain the rest of the medications and further assessment to be done.

**U.S. Department of Health and Human Services recommendations for Post Exposure Prophylaxis (PEP) to blood borne Pathogens**

1. **Recommended post-exposure management for exposure to HIV**

Post exposure treatment is not recommended for all occupational exposures to HIV because most exposures do not lead to HIV infection and because the drugs used to prevent infection may have serious side effects.

ID MO/ED MO should discuss the risks and side effects with HCW before starting post exposure treatment of HIV.

The risk of HIV infection after exposure depends on several factors that are related to the exposure itself and to the source patient (see below).

HCWs who are pregnant at the time of their exposure must weigh the risk of fetal exposure to HIV against the potential teratogenic and other risks of the ARV drugs (it should be noted that pregnancy is not a contraindication to PEP, and that a number of ARVs are recommended for use during pregnancy, based on safety and efficacy data)

HIV infection may occur through percutaneous injuries (e.g., needle stick) or mucocutaneous

exposures (e.g., mucous membrane or non intact skin exposure to blood or other potentially infectious body fluids).

The risk of HIV seroconversion after occupational exposure with an HIV-contaminated hollow-bore needle is best described as 0.3%, on average.

The following exposure and source patient factors were associated with an increased risk of HIV transmission:

* Large-gauge (<18-gauge) hollow-bore needle
* Deep injury
* Visible blood on the device
* Procedure with needle in a blood vessel
* Terminal AIDS in the source patient
* high HIV viral load low CD4 cell count

Compared with percutaneous injury, exposure of infectious body fluids to mucous membranes (e.g., eye or mouth) or to skin with an obvious impairment of integrity (e.g., abrasion or wound) typically involves a lower risk of HIV transmission (the transmission risk for mucous membrane exposure to HIV is approximately 1 in 1,000, and less than 1 in 1,000 for cutaneous exposure).

However, mucocutaneous exposures that involve large volumes of blood or other infectious fluid from an HIV-infected patient with a high HIV RNA level or prolonged duration of contact are considered increased-risk exposures.

Assessment:

The decision about whether to offer PEP should be based on the estimated risk of HIV exposure. See Table 1 (percutaneous exposures) and Table 2 (mucocutaneous exposures) for recommendations about PEP







**For HIV PEP:**

* **2 drug PEP (Basic Regime)**
	+ **Zidovudine 300 mg/Lamivudine 150 mg (COMBIVIR) one tablet 12 hourly for 28 days**
		- **Adverse effect: nausea, vomit, headache, myalgia, anemia are common.**

**OR**

* + **Tenofovir 300 mg/ emtricitabine 200 mg (TENVIR-EM) one tablet daily for 28 days.**
		- **Adverse effect: bone and renal disease**
* **3 drug PEP: (Basic Regime ) add**
	+ **Kaletra (lopinavir200mg/ritonavir 50 mg) 2 tablet 12 hourly for 28 days**
		- **Kaletra adverse effects: nausea, vomit, diarrhoea, abdominal pain, hyperbilirubineamia, transaminitis had been documented.**

**Combivir is available in ID Clinic (office hour) and in C5 / ED (after office hour).**

**Kaletra is available in ID Clinic (office hour).**

**B. *Recommended post-exposure management for exposure to hepatitis B virus***

* If the HCW had not been vaccinated, then hepatitis B vaccination is recommended for any exposure regardless of the source person’s hepatitis B status.
* If HCW is exposed to **HBV positive source patient**:

|  |  |
| --- | --- |
| **Status of HCW** | **Actions after exposure with HBV positive source patient**  |
| **Unvaccinated** | **IV IG HBV + initiate HBV vaccination series** |
| **Previously vaccinated but antibody response unknown** | **Tests exposed person (HCW) for anti HBs Ab*** **If > 10 miu/ml = no treatment**
* **If < 10 miu/ml = IV IG HBV and one booster dose of HBV vaccine 20 ug and retest anti HBs Ab one month later to recheck level**
 |

***DOSE:***

***HBIG***

*A single dose of HBIG (0.06 ml/kg or 5.0 ml for adults) should be given as soon as possible after exposure and within 24 hours if possible.*

***HB vaccine***

*1 ml (20 ug) should be given IM at a separate site as soon as possible, but within 7 days of exposure, with the second and third doses given 1 month and 6 months, respectively, after the first*

***C. Recommended post-exposure management for exposure to hepatitis C virus***

Currently there is no recommended post exposure treatment that will prevent HCV infection. The following are recommendations for follow-up occupational HCV exposures:

For the person exposed to an HCV-positive source:

* ID physician will perform baseline testing for anti-HCV, liver function test plus HCV RNA PCR for HCW at baseline +/- source person’s blood for HCV RNA PCR to determine the risk of exposure;
* Perform follow-up testing at 6 weeks and 3 months for anti-HCV and HCV RNA PCR + ALT activity.
* Antiviral agents are **not** recommended for PEP after exposure to HCV-positive blood.
* **Be aware that specific guidelines for administration of therapy during the acute phase of HCV infection are controversial.**
* However, limited data indicate that antiviral therapy might be beneficial when started **early in the course of HCV infection**. **When HCV infection is identified early, the person should be referred for medical management to a specialist knowledgeable in this area**(Hepatologist/Gastroenterologist)

***Precautions to be taken during the follow-up period***

**HIV**

* During the follow-up period, especially the first 6-12 weeks when most infected persons are expected to show signs of infection, the HCW need to be counselled for preventing secondary transmission of HIV.
* These include not donating blood, semen, or organs and not having unprotected sexual intercourse. In addition, women should consider not to breast-feed infants during the follow-up period to prevent exposing their infants to HIV in breast milk.

**HBV**

* If the HCW are exposed to HBV and receive post exposure treatment, it is unlikely that he or she will become infected and pass the infection on to others. No precautions are recommended.

**HCV**

* In view of the low risk of becoming infected and passing the infection on to others after an exposure to HCV, no precautions are recommended.

**Follow Up**

Exposed HCW should be assessed at 1 week for review of all test results.

For patients taking PEP, adherence assessment and evaluation of any side effects should be included.

 At 2 weeks and at 4 weeks, blood testing (e.g., FBC, creatinine, liver function tests) should be done for patients on a 28-day PEP regimen to monitor toxicity,

PEP is discontinued at 4 weeks.

Follow-up HIV antibody testing: at 6 weeks, 3 months, and 6 months after the exposure.

In addition to health education counseling, many exposed workers need emotional support during their follow-up visits.

Watch out for symptoms of primary HIV infection such as fever, rash, and lymphadenopathy which may occur in HCWs who have been infected with HIV through occupational exposure.

If symptoms consistent with primary HIV appear within 4-6 weeks after an

occupational exposure, the HCW should be evaluated immediately (and an HIV RNA test should be obtained if acute HIV infection is suspected).

If an HCW is found to be infected with HIV, that individual should be referred immediately to ID physician for further evaluation and care.

**References**

Bassett IV, Freedberg KA, Walensky RP. *Two drugs or three? Balancing efficacy, toxicity, and resistance*

*in postexposure prophylaxis for occupational exposure to HIV.* Clin Infect Dis. 2004 Aug 1;39(3):395-401.

Cardo DM, Culver DH, Ciesielski CA, et al.; Centers for Disease Control and Prevention Needlestick

Surveillance Group. *A case-control study of HIV seroconversion in health care workers after percutaneous*

*exposure*. N Engl J Med. 1997 Nov 20;337(21):1485-90.

Do AN, Ciesielski CA, Metler RP, et al. *Occupationally acquired human immunodeficiency virus (HIV)*

*infection: national case surveillance data during 20 years of the HIV epidemic in the United States.* Infect

Control Hosp Epidemiol. 2003 Feb;24(2):86-96.

Gerberding JL. *Clinical practice. Occupational exposure to HIV in health care settings.* N Engl J Med.

2003 Feb 27;348(9):826-33.

Gupta A, Anand S, Sastry J, et al. *High risk for occupational exposure to HIV and utilization of*

*post-exposure prophylaxis in a teaching hospital in Pune, India.* BMC Infect Dis. 2008 Oct 21;8:142.

Puro V, Francisci D, Sighinolfi L, et al. *Benefits of a rapid HIV test for evaluation of the source patient after*

*occupational exposure of healthcare workers.* J Hosp Infect. 2004 Jun;57(2):179-82.

U.S. Department of Health and Human Services. *Updated U.S. Public Health Service Guidelines for the*

*Management of Occupational Exposures to HBV, HCV, and HIV and Recommendations for Postexposure*

*Prophylaxis*. MMWR Recomm Rep. 2001 Jun 29;50(RR11);1-42.

U.S. Department of Health and Human Services. *Updated U.S. Public Health Service Guidelines for the*

*Management of Occupational Exposures to HIV and Recommendations for Postexposure Prophylaxis*.

MMWR Recomm Rep. 2005 Sep 30; 54(RR09); 1-24.

Wang SA, Panlilio AL, Doi PA, et al. *Experience of healthcare workers taking postexposure prophylaxis*

*after occupational HIV exposures: findings of the HIV Postexposure Prophylaxis Registry.* Infect Control

Hosp Epidemiol. 2000 Dec;21(12):780-5.

Zenner D, Tomkins S, Charlett A, et al. *HIV prone occupational exposures: epidemiology and factors*

*associated with initiation of post-exposure prophylaxis.* J Epidemiol Community Health. 2009

May;63(5):373-8.

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ID unit HPP